

ABSTRACT OF DISCLOSURE

A linear compressor and apparatus to control the linear compressor are provided which allows a frequency of a drive current supplied to a drive motor to synchronize with a resonance frequency varying according to a load fluctuation, in real time, thus obtaining a maximum efficiency of the linear compressor. The linear compressor includes a drive motor, a piston reciprocating by the drive motor and a control unit generating a reference current having a phase difference of 90° with respect to a displacement waveform of the piston and a frequency equal to the displacement waveform of the piston, and controls a drive current supplied to the drive motor to synchronize with a resonance frequency of the piston by synchronizing the drive current with the reference current.